ENSIGN COLLEGE OF PUBLIC HEALTH, KPONG EASTERN REGION, GHANA

KNOWLEDGE AND UTILIZATION OF THE MODIFIED WHO PARTOGRAPH BY MIDWIVES AT GA SOUTH GOVERNMENT HEALTH FACILITIES IN THE GREATER ACCRA REGION OF GHANA

BY

VIVIAN HICKSON ASIRIFI

INDEX NUMBER--- 177100116

A Thesis submitted to the Department of Community Health in the Faculty of

Public Health in partial fulfilment of the requirements for the degree

MASTER OF PUBLIC HEALTH

Name of Supervisor – Dr. Edward Kofi Sutherland

Co-supervisor – Dr. Sharon Talboys

JUNE, 2019.

DECLARATION AND CERTIFICATION

I hereby declare that except for references to the work of other researchers which I have duly cited, this project submitted to the Department of Community Health, Ensign College of Public Health, Kpong is the result of my own investigations and has not been presented anywhere else for any other degree.

Vivian Hickson Asirifi (Mrs.)	----------	----------
177100116	Signature	Date

Certified by

Dr. Edward K. Sutherland	----------	----------
(Supervisor)	Signature	Date

Certified by

Dr. Sharon Talboys	----------	----------
(Co-Supervisor)	Signature	Date

Certified by

Dr. Stephen Manortey	----------	----------
(Head of Academic Program)	Signature	Date

DEDICATION

My first dedication goes to the Lord Almighty for his unfailing love and mercies towards me. Again this is dedicated to

- Mrs. Comfort Ofori Boafo.
- My children Caleb, Ruth, EstherClarice and especially Kwabena Asare Asirifi.
- My siblings.

ACKNOWLEDGEMENT

My foremost thanks go to God Almighty for granting me strength and good health in carrying out this research.

My sincere gratitude goes to my supervisor, Dr. Edward K. Sutherland for his critiques, suggestions and timeless evaluation of my work. For his effort to offer all forms of support in making this work a success, I say a “big thank you”. Also to my co-supervisor Dr. Sharon Talboys for all her encouragement, I acknowledge great gratitude.

I am deeply thankful to all the faculty of Ensign College of Public Health for vesting in me the ability to conduct this research, remembering both past and present members. My special appreciation goes to Dr. Davis-Teye, the Director of Health Services at Ga South Municipal Health Directorate, all labor ward in-charges of the eight health facilities involved in this study. My warm heartfelt thanks to my research assistants Beatrice, Issah and Ali for their immense contribution, and to those who read through my write-up and made necessary inputs especially Mr. V.K. Fosu, Mr. L. Acquah, Mr. K. Bondah and Camara Sidiki for the successful completion of this work.

The last but not the least expression of great appreciation is to everyone especially Mr. Samuel Hickson Asirifi who supported me in diverse ways through this MPH program backed with zealous prayers which have brought me thus far. To my course mates and friends, your warm thoughts and words of encouragement when the going was tough is well appreciated.

LIST OF ABBREVIATIONS /ACRONYMS

ARM	-	Artificial Rapture of Membranes
APH	-	Antepartum Hemorrhage
CM	-	Centimeter
C/S	-	Caesarean Section
ECOPH	-	Ensign College of Public Health
FHR	-	Fetal Heart Rate
GFR	-	General Fertility Rate
GHS	-	Ghana Health Service
LMICs	-	Lower and Middle-Income Countries
MDGs	-	Millennium Development Goals
MHD	-	Municipal Health Directorate
MOH	-	Ministry of Health
SDGs	-	Sustainable Development Goals
TFR	-	Total Fertility Rate
WHO	-	World Health Organization

OPERATIONAL DEFINITIONS

Midwife: A person who has undergone training by all standards to conduct delivery skillfully.

Modified WHO Partograph: A single graph sheet currently recommended by WHO for skilled birth attendants to plot labor components.

Progress of Labor: Birth process divided into three stages, from contractions till a woman's cervix is fully dilated.

Ga South: One of the 26 newly created Municipals/ Districts in Greater Accra Region.

ABSTRACT

Background: A partograph is a simple graphical and pictorial obstetric tool used by skilled birth attendants to detect abnormal labor as early as possible for a good pregnancy outcome (healthy mother and live baby). It is a universally accepted tool which has been endorsed by the World Health Organization (WHO) to be used as a safe motherhood initiative for the reduction of maternal and neonatal mortality and morbidity in the developing world. We sought to assess the level of knowledge and utilization of the Modified WHO partograph by midwives in the Ga South Municipal government health facilities in the Greater Accra Region of Ghana.

Methods: The study employed a descriptive cross-sectional quantitative study design engaging eight government health facilities. A structured questionnaire with both open-ended and closed-ended questions was used. The survey was conducted within the period from February to March 2019. All gathered data was exported from Excel into STATA statistical software package (StataCorp.2007. Stata Statistical Software. Release 14. Stata Corp LP, College Station, TX, USA). The analysis included descriptive as well as analytical findings using Chi-square test and assumed a statistical significance of $p<0.05$.

Results: A total of 110 midwives were involved. The results revealed that most midwives 105(95.5%) could describe the WHO partograph properly and again, majority102 (92.7%) routinely used the partograph for monitoring of expectant women in labor. Almost half of the participants worked at the health centers and most received regular supply of the partograph charts. Among the challenges faced by participants was the shortage of midwives 60 (54.5%). There was one significant association between

midwives use of the modified WHO partograph and their knowledge on the GHS policies ($p < 0.045$).

Conclusion: Midwives exhibited a high level of knowledge on the use of the Modified WHO partograph and a majority used it routinely. The number of midwives per shift could hinder the proper utilization of the partograph.

Table of Contents

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

1.1 Background Information

Using the partograph to screen women in labor is one of the universally recognized tools to decrease maternal and neonatal mortality and morbidity and as such, the World Health Organization (WHO) recommends its usage for monitoring of labor and delivery with an impartial aim to improve outcome of pregnancy and reduce maternal and fetal illness and deaths (Mandiwa and Zamawe,2017;Yisma *et al.,* 2013). During childbirth, complications usually arise without warning and these cannot be anticipated or stopped (Woldemichael et al., 2016). As explained by Khonje (2012), the partograph is a graphical representation of observations made on a woman and fetus during the progression of labor.

In order to attain the Sustainable Development Goals (SDGs) by 2030, the United Nations has stated that, global maternal mortality ratio and neonatal mortality should be reduced to less than 70/100 000 live births and at least 12/1000 live births respectively (Bazirete et al., 2017). According to Abebe (2013), and Hailu *et al.*,(2018), most maternal and newborn mortality happen in developing countries during delivery time but many of these mortalities and complications could be prevented by cost-effective and affordable health interventions such as the partograph. From a study conducted by Sama *et al.*, (2017), the partograph as a tool is vital for midwives to enable them detect pathological labor early and also to recognize complications in delivery so that proper

actions/interventions are taken. It has been demonstrated to successfully prevent maternal deaths and subsequent complications due to obstructed or prolonged labor.

WHO recommends using of the partograph to monitor women during labor to assist in identifying early abnormal progress of labor so that interventions can be performed quickly (Tayade et al., 2012). In a study by Mathibe-Neke et al.,(2013), as a requirement, health facilities that conduct delivery are to embrace the partograph as a policy to ensure the safety of pregnant women in labor.

1.2 Statement of the Problem

As defined by WHO, (2004), **"**maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes". According to WHO (2014),as part of the SDGs, from 2016 to 2030, it has been targeted to reduce global maternal mortality ratio to below 70 per 100 000 live births through skilled attendants who render care before, during and after delivery in order to save the lives of many women and newborns.

Almost ninety nine percent (99%) of women who die giving birth happens in developing countries (Abebe, 2013).Out of these mortalities, an estimated majority happen in Sub-Saharan Africa, of which the bulk could have been prevented. Ghana, one of the developing countries in Sub-Saharan Africa, has high maternal mortality ratio estimated to be 319/100,000 live births (WHO 2014). According to Sama *et al.*, (2017), in order to curtail the upsetting numbers of intrapartum maternal mortalities, there is evidence that

show that cost-effective and affordable health interventions like the use of the partograph among others can be counted upon. Yisma *et al.,* (2013), through a study observed that, although usage of the partograph has been found in many health facilities and centers, inconsistency in its utilization remains a challenge that results in poor maternal outcomes. Ollerhead and Osrin, (2014), stated that the partograph is a response to show the worth and significance for maternal and newborn care as it demonstrates potential efficacy and effectiveness. Thus, there is a need for consistency in its utilization and application. In the Greater Accra Region of Ghana, maternal and neonatal deaths have been reported over the years. Some of these death audits come from the government health facilities within the Municipals and Districts where deliveries are conducted. Ga South Municipal health facilities were not in exemption with a record of four maternal mortalities and twenty-six stillborn deliveries occurring in 2018. This research was therefore carried out to assess the level of knowledge of midwives and their utilization of the modified WHO partograph since they form the majority of the frontline caregivers when it comes to labor and delivery of pregnant women at these health facilities.

1.3 Rationale of the Study

A study conducted by Tayade et al., (2012), suggested that using the Modified WHO partograph can reduce by far the number of complications arising from prolonged labour such as uterine rupture for laboring women and asphyxias in the newborns. The findings from this study will highlight factors affecting the level of knowledge and use of the

Modified WHO partograph by midwives so that suitable measures can be put in place to advance maternal health by providing quality intrapartum care to pregnant women during labor. The results from this study will add to understanding the extent of utilization of partograph by midwives. It may also serve as a basis for health policy-makers to impart good administrative practices in the healthcare delivery system, with respect to improvement of quality of care during labor and early post-partum periods. In addition, the research study will document the challenges faced by midwives in the utilization of the partograph and encourage the administration of such health facilities as well as policy makers to come out with approaches designed to address these challenges. This will encourage partograph use and thus help reduce the rate of maternal and neonatal illness and deaths associated with labor and delivery. The findings from this study will provide baseline information for further studies on the use of the Modified WHO partograph and quality of care in labor wards of government health facilities where deliveries are conducted within the Ga South Municipality in particular.

1.4 Conceptual Framework Description

According to Lizasoain *et al.*,(2015), the ability of the partograph to reduce maternal and neonatal morbidity and mortality has been affirmed by many for over seventy (70) years since Friedman's invention and nearly fifty (50) years since it was updated by Philpott and Castle in the early 1970's. The WHO adopted the partograph in the year 1993 and as a safe motherhood initiative for labor monitoring in 1998. In the year 2000, the

composite partograph which has a prolonged latent phase was modified into a simple and easy to use tool and the Government of Ghana's concern for safe motherhood initiatives with formulated guidelines and policies added on to serve as a measure for appropriate use. Several research findings indicate that, insufficient knowledge, unavailability of partograph charts in labor wards, pressure of work on staff during shifts among some other reasons contribute to the partograph not being used and its wrongful usage (Lizasoain *et al.* 2015). With regards to staff factors, considering number of midwives per shift, their knowledge and experience, staff attitude and training on the use of partograph were measured for the appropriate use of the partograph (Zelellw and Tegegne, 2018). The progress of labor, maternal and fetal conditions form three components of the partograph policies and guidelines which require complete and correct filling. Ideally, all (normal) laboring women should be monitored on the partograph, but the following categories are the exceptional such as a woman arriving in second stage, a woman with antepartum hemorrhage (APH) and previous post-partum hemorrhage in labor and a woman who has contrary obstetric history and has been booked for elective Caesarean section (C/S) (Lizasoain *et al.*, 2015).

Conceptual framework of the study is as shown in figure 1-1 below

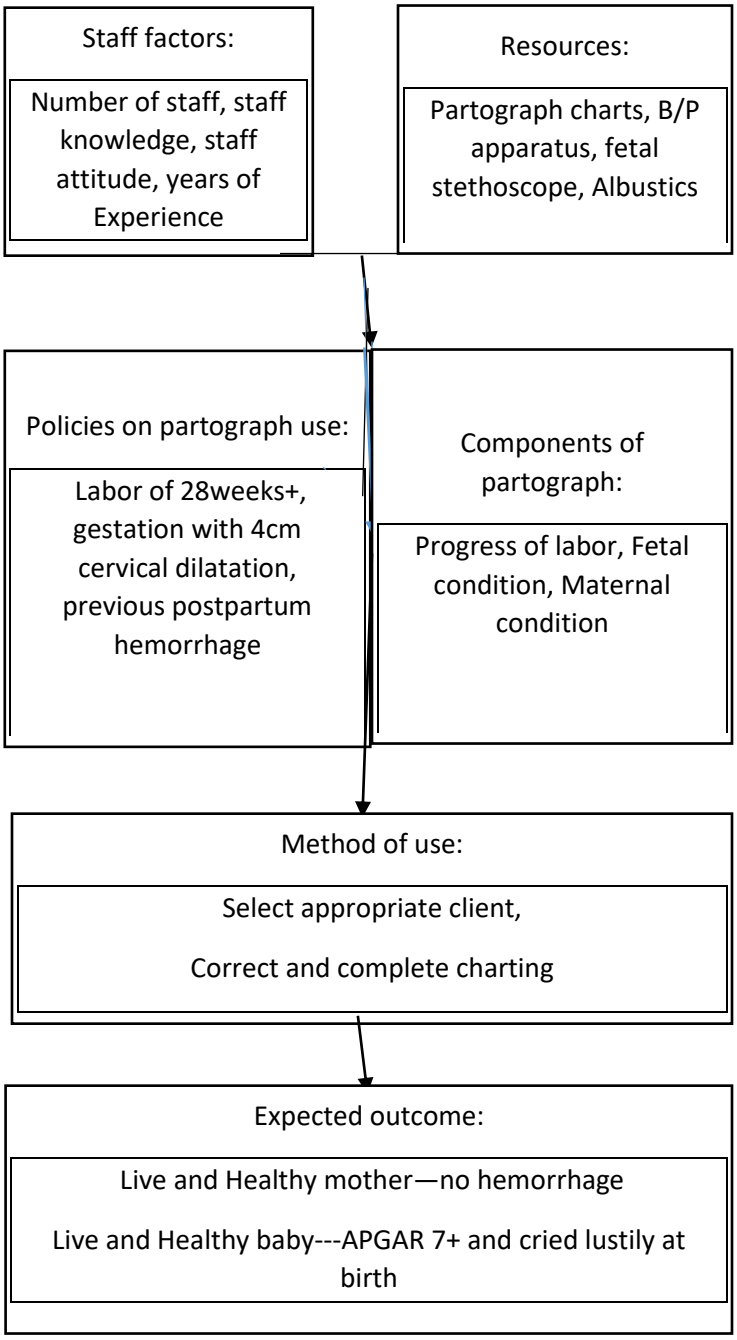


Figure 1-0-1 Conceptual Framework (Modified)

Modified conceptual framework (Lizasoain *et al.*, 2015).

From the above Figure 1-1, the concept is intended to look at how staff factors (organizational), resource factors, policies and protocols inter-related will lead to high

levels of knowledge and utilization of partograph, which advertently will lead to improved fetal and maternal birth outcomes. Partograph knowledge and utilization by midwives in government health facilities in Ghana may be caused by some of these three factors which are interlinked.

1.5 Research questions

The study was conducted based on the following questions:

1. What is the level of knowledge on the use of the Modified WHO partograph by midwives.

2. How often and to what extent do midwives use the Modified WHO partograph?

3. What managerial protocols are in place for midwives concerning the use of the Modified WHO partograph.

4. What are some associated challenges faced by midwives with the Modified WHO partograph usage.

1.6 General Objective of the Study

The general objective of this study was to assess the level of knowledge and utilization of the Modified WHO partograph by midwives at government health facilities in the Ga South Municipal of the Greater Accra Region of Ghana.

1.7 Specific Objectives

The specific objectives of the study were:

1. To assess the level of knowledge on the use of the Modified WHO partograph by midwives.
2. To assess the frequency and the extent of use of the Modified WHO partograph by midwives.
3. To determine the managerial protocols in place for midwives concerning the use of the Modified WHO partograph
4. To explore the challenges faced by midwives with the Modified WHO partograph usage.

1.8 Scope of the Study

This study was restricted to only midwives who work in the labor wards of Ga South Municipal government health facilities in the Greater Accra region of Ghana. Midwives (skilled birth attendants) are the cadre of health professionals mostly at the frontline of providing care when it comes to attending to pregnant women in labor. A cross-sectional quantitative method was used to assess the level of knowledge and utilization of the Modified WHO partograph by midwives as well to determine some challenges they face in the utilization of the partograph as a tool to improve on the poor outcomes of pregnancies in the government health facilities.

1.9 Organization of Report

This report is organized into six (6) main chapters which are the Introduction, Literature Review, Methodology, Results, Discussion, Conclusions and Recommendations.

The introduction (first chapter) gives an overall view of the general introduction and background of the study, statement of the problem, rationale of study, conceptual framework, research questions, objectives of study and finally, the organization of the report.

Chapter two which is the literature review gives a detailed description of related research work done on the topic on the knowledge and utilization of the partograph by midwives.

The third chapter outlines the methodology which was employed for the study, sample size and tools used for data collection and analysis.

Chapters four and five dwell on the results and discussions respectively.

Finally, chapter six concludes the research, gives recommendations and suggestions to stakeholders and interested parties based on the findings and deliberations made in chapters four and five of this study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discusses the literature on the main areas of the study and presents evidence by researchers and other authorities regarding the knowledge and use of the Modified WHO partograph. Other similar articles and journals which have been published on the topic were studied with references and acknowledgement to these authors made.

2.2 History of the Partograph

The Friedman's partograph devised in 1954 was based on observations of cervical dilatation of 1cm from the onset of active phase and fetal condition against time in hours from the start of labour which is based on the client's independent cognizance of her contractions (Tayade et al., 2012).According to Mandiwa and Zamawe (2017), the partograph which was designed by Philpott in the early 1970's was an upgrade of Friedman's cervicograph developed in 1954. The partograph, by the year 1973, was already considered a simple device used to differentiate normal labor from abnormal labor since it had been adopted to monitor 15,000 deliveries within a span of 18 months (Mathibe-Neke et al.,2013).

The proper use of the partograph with regards to standard protocols gave strong focus to the alert and action lines which allowed for the appropriate documentation and diagnosis

of an abnormal labour. These lines aid and guide in timely decision-making in accordance with the necessary interventions that could be carried out (Sama *et al.*, 2017).

Since the introduction of the partograph by Friedman over fifty (50) years ago, there seems to remain a disturbing reality that, across developing nations which have poor maternal mortality indices, there is still lack of adequate knowledge and low utilization of this life-saving tool by care providers in labour wards (Lizasoain *et al.*, 2015). According to Sama *et al.*,(2017), the incorporation of the partograph into the existing health policies and midwifery training guidelines would create alertness and offer insights into other causes of maternal deaths with efforts geared towards finding concrete solutions. The partograph offers a midwife a vivid picture of the progress of labor in a woman by allowing her to identify and diagnose early, any life-threatening condition that can halt safe and smooth delivery. The WHO recommends the use of the partograph in the monitoring of labor and delivery with the focus on improving healthcare and reducing maternal deaths and intrapartum stillbirths (Yisma *et al.*, 2013b).

2.3 Description of the Modified WHO Partograph

As described by Yisma *et al.*, (2013), the modified WHO partograph (see Appendix3) is a single graphic recording sheet of the progress of labor and relevant details of the wellbeing of both mother and fetus. Its initial introduction was to serve as “an early warning system” to detect labor that has deviated from the normal by giving allowance

for timely transfer of a woman in labor to a referral center for augmentation or Caesarean section as a form of further management (Tayade et al.,2012).With explanation from Monjok *et al.*,(2014), the partograph can indicate when augmentation is needed, it can reveal possible cephalo-pelvic disproportion before labor becomes obstructed. The partograph therefore increases the quality and regular observations on a one summary sheet with important visual details of the mother and fetus. According to Kwast et al.,(2016), the main part of the partograph which is the cervicograph is the plot for cervical dilatation in centimeters (cm) against time with very distinct symbols. The plot of these symbols on the modified WHO partograph is the (X) symbol representing the cervical dilatation whiles (O) represents the fetal head descent. The graph again shows two diagonal lines with the immediate one being the alert line indicating cervical dilatation starting from 4cm to 10cm with a rate of 1cm per hour. The second which is the action line is 4 hours parallel to the right of the alert line indicating a period for interventions and actions that can be taken by birth attendants (midwives) as a measure to reduce maternal and newborn morbidity and mortality (Kwast et al., 2016). Zelellw et al., (2016), found that, many countries which used the partograph have shown it to be effective in the prevention of prolonged labour which reduces invasive procedures and improves on the well-being of both fetus and mother.

2.4 Parameters for Monitoring Cervical Dilatation on the Modified WHO Partograph

2.4.1 The "Alert Line"

On the modified WHO partograph, the alert line is a graphic line drawn from 4cm to 10cm cervical dilatation and it plays a vital role in detecting fetal distress which calls for resuscitation of the baby soon after its birth(Khonje.,2012). It is a straight line which represents the progress rate (dilatation) of the cervix of a laboring woman by 1cm per hour (Sama *et al.*, 2017). Its purpose is to aid the midwife in the sub-district, a general practitioner or house officer or a surgeon in the health facility to detect at the earliest possible time when a normal labor deviates into an abnormal labor (Zelellw et al.,2016). When a woman's cervical dilatation progresses slower than 1 cm per hour, the plot on the graph would cross the alert line to the action line and therefore would prompt a skilled birth attendant to arrange for transfer if at the peripheral unit, to a higher facility level for further management to be made (Fawole *et al.*,2008).

2.4.2 The ''Action Line''

This is next to the alert line and parallel to it on the right by 4 hours and indicates slow progress of labor (prolonged or obstructed) which is a source of maternal dehydration and exhaustion, maternal and fetal sepsis, and a probable rupture of the uterus due to the prolonged nature of labour (Khonje, 2012). According to Zelellw et al., (2016),the appropriate and necessary actions could include: correction of primary inefficient uterine activity which runs with an intervention like artificial rupture of membranes (ARM) and /or setting up of oxytocin infusion and this therefore calls for an increase in skills and

experience of the midwife who handles the delivery. A positive outcome of such a pregnancy could be an emergency Caesarean section (operation) as the last resort to relieve the mother and fetus from distress and further birth complications and thus reduce morbidity and mortality.

According to a study by Zelellw et al., (2016), about 49% and 72% out of 273 obstetric caregivers could properly explain the functions of the alert and action lines respectively. In comparison to another study conducted in South-West Nigeria involving 719 healthcare workers (Auxiliary Nurses, Nurse/Midwives and Physicians), the explanation of the functions of the alert and action lines were considered generally poor since only 16.6% and 24.3% of the respondents could properly explain them.

2.5 Output of Partograph Utilization

The supervision of labor as early as possible has good control on maternal and fetal outcomes where the use of the WHO partograph is considered an important tool since it produces an overall picture of the progress of labor on a single sheet (Zelellw and Tegegne, 2018). According to Abebe(2013), midwives have the opportunity to tactically recognize and diagnose signs of abnormal labor some of which inadvertently end in prolonged labor leading to postpartum hemorrhage, uterine rupture among others (maternal morbidities and mortalities). The use of the partograph therefore is important and critical to the midwife, in that, it helps to prevent and reduce the incidence of both maternal and newborn illness and deaths due to complications that may arise during labor (Zelellw and Tegegne, 2018). With evidence from the labor wards, partograph charts should be available with all suitable apparatus and clinical supplies for the assessment of progress of labor in order to help midwives to initiate adequate

interventions that are recommended for abnormal labor on time (Opiah *et al.*, 2012). According to Ollerhead and Osrin (2014), midwives might lack the awareness of the usage and worth of the modified WHO partograph and portray it to be a difficult accomplishment and time demanding. Midwives rather ought to rate the partograph as being a supportive aid and a good practicing tool which enhances the flow of their work when it is used appropriately.

To determine the extent to which midwives make full use of the partograph to attain its intended value, there should be checks on the progress of labor through proper recordings of the parameters on the partograph and to confirm its complete filling (Mandiwa and Zamawe, 2017). With the use of the modified WHO partograph in many developing countries however, it is being described as underutilized. To measure its output therefore, there should be an exhibition of the completeness of the partograph which has yielded good results by the reduction in morbidity and mortality during child birth to indicate an enhancement in pregnancy outcomes. This would showcase its value and worth through the assessment (chart findings) on all the parameters of the modified WHO partograph (Ollerhead and Osrin, 2014).

2.6 Knowledge and Training of Midwives on Partograph Use

The usage of the Modified WHO partograph has considerably improved maternal and perinatal outcomes of labor and thus it is recommended in all labor units where deliveries are conducted (Zelellw and Tegegne,2018). Midwives have used the partograph to deliver intrapartum care during labor management and have used it to

justify their decisions on the time to refer a woman in labor to a higher level, where interventions such as Caesarean sections yielded good results. From the time of introduction of routine partograph use, it has been associated with a more balanced decision-making process by midwives enabling them to take a critical look at the progress of labor to recognize a deviation from the normal (Wakgari *et al.*, 2015). As an obstetric tool, the usefulness and proficiency of the modified WHO partograph has a broad scope across both resource-poor (developing) and developed nations. The benefit is that, there is an increase in economic growth because mothers' lives are saved and they in turn would contribute to their families income which impact on their livelihood (Asibong, *et al.*,2014). Midwives who provide such care for women in labor should therefore receive skilled training and regular updates on its use (Tayade et al., 2012). Training should follow established and effective methods like the multidisciplinary training model in both the midwifery institutions and on the labor wards. The training should be inclusive of proper completion and decision-making skills for midwives to know how best to document and to take appropriate action for referrals (Zelellw and Tegegne,2018). In a study conducted in Central Ethiopia, obstetric caregivers had a good level of knowledge on the use of the partograph and their level of knowledge was suggestively linked to working in the hospitals and being trained on-the-job about partograph use (Bazirete et al., 2017). From Bedwell *et al.*,(2017), the partograph is more probable to be used in the government health facilities where the availability of policies and guidance appear to have a positive impact for its use than in the private health facilities in Ghana.

2.7 Challenges Associated with the Modified WHO Partograph Use

A study by Ollerhead and Osrin, (2014), revealed that midwives have challenges in using the partograph and some reasons for improper partograph use were related to the partograph chart itself, quality improvement indicators (policies and guidelines), as well as the organizational settings in the health systems within the wider obstetric care provision. Due to lack of evidence, the partograph helpfulness and reliability as a barrier to its use is not known. Low- and middle-income countries (LMICs)should identify and address local barriers and incentives on strategic ways to improve on the partograph use.(Ollerhead and Osrin, 2014).

2.7.1 Lack of Resources

About forty-one (41%) per cent of participants from a research conducted by Wakgari *et al.*,(2015), cited the shortage of staff (human resource) as a barrier for not using the partograph routinely. Low staff strength in labor wards was envisaged to be a major challenge in many health facilities where deliveries are conducted by midwives who are seen as core professionals in rendering nursing care to expectant women. According to Wakgari *et al.,(*2015) although midwives are trained yearly from the Midwifery Training Institutions, there seems to be a gap in terms of human power in the labor wards because majority of the facilities express shortage of midwives. Opiah *et al.,(*2012), indicated that, poor staffing becomes a challenge at workplaces and with much pressure, human errors could occur leading to high fatalities in the labor wards. According to Bedwell *et al.*,(2017), the non-availability of some required equipment (logistics) such as fetoscope, blood pressure apparatus, urine strips to test for laboring women and the lack of

partograph charts among others pose challenges to the use of the partograph by midwives. In a study by Lizasoain *et al., (*2015), the training of midwives to use the partograph with periodic workshops and seminars as well as mandatory facility health policies are mentioned to be important for the safety of women in labor who are monitored using the modified WHO partograph.

2.7.2 Lack of Supportive Supervision and Training

According to Ollerhead and Osrin, (2014), many of the issues relating to partograph non-use arise from the difficulties of putting the theory into practice effectively at the labor wards. Willi and MitikeMolla, (2017), expressed that, there is limited evidence on challenges faced by midwives on the proper use of the partograph in literatures. However, Bedwell *et al.,* (2017), also stated that with ongoing supervision and support by labor ward superiors, it is likely to improve the partograph use through periodic trainings to increase the level of knowledge and the completion of the partograph in practice. Partograph implementation when not well rooted into routine obstetric care has reduced levels of compliance which does not fit into the daily practices of midwives. Partograph usage is a recognized best practice for excellence in observing labor which has led to reduction in obstructed and protracted labor. For this reason the WHO recommends its use in developing countries to serve as a tool and a safe motherhood initiative (Willi and MitikeMolla.,2017). Nevertheless, some health facilities experience a number of obstructed labor cases due to deprived excellence of intrapartum management of labor (Yisma *et al.*, 2013). According to Mathibe-Neke et al., (2013), most midwives reported difficulties in using the partograph from the start but later it was found that these difficulties were as a consequence of "a pattern of wrong plotting". This

was as an outcome of doctors being unable to plot, students being afraid to plot and the midwives themselves not being proficient and assertive in the plotting of their findings which resulted in poor record keeping.

2.8 Benefits of Partograph Usage

Baxter *et al.*, (2008), indicated that, monitoring of women in labor on partograph may have quality-of-care benefits that go beyond effective labor monitoring and supervision. The partograph on its own does not report on all features of quality of care, but it plays a significant role in managing labor. The essence of quality delivery services requires that, the facility has available physical structure, human resource with the necessary knowledge and skills, medicines and supplies and the requisite capabilities to manage uncomplicated and complicated labor / delivery procedures effectively. The appropriate use of the partograph helps in early detection of any deviation from normal so that, necessary interventions would be made to save more lives of mothers and newborns.

2.9 Usage Benefit to The Midwife

The partograph as a tool in the management of labor can enhance communication among midwives, develop communication between midwives and laboring women, stimulate continuity of care and give inspiration to midwives through teamwork. According to Tayade et al.,(2012), using the Modified WHO Partograph has an advantage of being accepted more by midwives in that, the dormant (latent) phase of labor has been removed and thus making it simple for effectual labor management to prevent prolonged labor. In a study by Baxter *et al.*,(2008), there are competencies needed by midwives to attend to women with normal labor and deliver them safely. These are by performing

abdominal examinations to determine fetal head descent, vaginal examination to decide the dilatation of the cervix and last but not the least, the ability to plot the findings on the parameters of a partograph. When all these are done properly, the WHO partograph will serve as a guide for smooth delivery and strengthen midwives in safe motherhood practices.

2.10 Usage Benefit to The Client

The partograph has been designed to pick the history and observations of a woman in labor so as to alert the obstetric caregiver (midwife) and prompt her on the action (s) to be taken, but its limitations are not well monitored by care givers (Lizasoain et al.,2015;Wakgari *et al.*, 2015). Empowering women to expect improved care by delivering at health facilities and reporting early for admission when labour starts, would likely be a gained benefit of partograph use (Ollerhead and Osrin, 2014). Also Monjok *et al.*,(2014), explained that, the partograph is a very useful graphical record of the course of labor that yields most favorable results when used for labour management by midwives. The partograph serving as an "early warning system" can assist in quick decision making (when to transfer), augment labor and terminate labor by other means such as through Caesarian sections for the wellbeing of both mother and fetus (Asibong *et al.*, 2014). When the partograph is used, many more lives of mothers could be saved through the reduction of complications associated with childbirth.

2.11 Usage Benefit to The Nation

According to Asibong *et al.*,(2014), the benefits of the partograph is found not only in developed nations but also in low- and-middle income countries as well. Some evidence

from other studies show that, the knowledge gained on partograph use by midwives and its proper application on the wards aids in the reduction of maternal and neonatal deaths and illness. With regards to the nations' economic growth, resources are therefore secured and channeled into other national developments in order to improve the socio-economic status of the country through productivity in totality (Monjok *et al.,* 2014).

CHAPTER THREE

METHODOLOGY

3.1 Introduction

In this section, explanations on the methods that were used to carry out this study are elaborated upon. These include the research study design, study area and study population. The methods and procedures for data collection and data sampling are also provided. Furthermore, the ethical consideration, data analysis and management as well as assumptions for this research are provided.

3.2 Study Area

The study was conducted at Government health facilities in Ga South Municipal in the Greater Accra region of Ghana. The Ga South Municipal was one of the newly created Municipals among twenty-six (26) districts in 2008 in the Greater Accra Region and has its administrative capital as Weija. It covers a total land area of about 517.2sq km with about 362 communities and lies within longitude 5^{o} 48 North and 5^{o} 29 South and Latitude 0^{o}8East and 0^{o}30 West respectively. The Municipal Health Directorate has divided the municipal into eight sub-municipalities for health administrative purposes to aid easy accountability (Ga South Municipal Health Annual report, 2017). It is a densely populated area and the 2010 Population and Housing Census puts the total population to be about 411,377 representing almost one-tenth of Greater Accra Region's total population. Females account for fifty-one percent (51.1%) whiles males represent forty-nine percent (48.9%). It has a four per cent (4%) annual growth rate as per the 2010 national census rate(GSS) 2010. The Municipal shares boundaries with Ga Central and

Ga West to the north, to the south by the Gulf of Guinea, to the west by Awutu Senya East District and to the east by Accra Metropolitan Area respectively as shown on the map (Figure 3-1). Some popular communities in the Municipal include: Mallam/Gbawe, McCarthy Hills Estates and Kokrobite beach resorts. The Municipal Hospital serves as a referral point for the health centers within the district. The study was carried out at the Municipal Hospital at Weija, Ngleshi Amanfro polyclinic and six health centers located at Bortianor, Mallam, Kokrobite, Obom, Aplaku and Oblogo all within the Ga South Municipality.

Figure 3 -1 Map Of Ga South

Source: Ga South Municipal Health Directorate

3.3 Research Methods and Design

A cross-sectional study design was employed for this study and descriptive quantitative analysis was conducted. All midwives in the labor wards of the Ga South Municipal government health facilities were invited to participate. The study began on the 25th of February2019 and ended on the 25thof March 2019.

3.4 Data Collection Techniques and Tools

Data was collected using a structured questionnaire to solicit information from respondents. The questionnaire was adopted and modified (Lizasoain *et al.*, 2015;Khonje,2012) based on similar studies done on the topic. Field assistants were also trained to assist with the data collection and entry.

3.5 Study Population

The study population included all midwives who work in the labor wards of government health facilities in Ga South Municipality. The entire midwives' population was the target for this study and thus, the results may be generalized to all midwives practicing in the Ga South Municipal government health facilities.

3.6 Sample Size

The study participants are practicing midwives on the labor wards at the Ga South Municipal government health facilities and consented to participate in the study. This involves the Municipal Hospital, Amanfro Polyclinic and the six health centers within the Municipal. From the Municipal Health Directorate, the quarterly Nominal Roll of staff, for the fourth quarter 2018indicated that, the Municipal Hospital had 43, Ngleshi

Amanfro Polyclinic 26 and from the six health centers58 giving a total of 127midwives. Eleven (11) midwives were unavailable due to the fact that; six midwives were on study leave, three had retired from work, one each on transfer and annual leave respectively. During the study period, questionnaires were distributed to 116 midwives who were at post. Given an attrition rate of 5 %, the sample size for this study was 110 midwives.

3.6.1 Inclusion Criteria

All midwives rendering delivery services at labor wards in the Ga South Municipal government health facilities.

3.6.2 Exclusion Criteria

All nurses who are not midwives are practicing on the labor wards of government health facilities in Ga South Municipal.

3.7 Study Variables

The study assesses the knowledge and utilization of the modified WHO partograph by midwives in government health facilities at the Ga South Municipal. The study variables are categorized into dependent and independent variables. The dependent variable of this study was knowledge and use of the modified WHO partograph whilst the independent variables were the demographic variables; age, rank, years of experience, educational qualification, place of work and other important parameters that influence the quality of obstetric care.

3.8 Pre-testing

Pretesting was done to assess the clarity of the questions administered to the midwives and also to have an estimated time for completion of each questionnaire. The pre-testing

was carried out with midwives working at the Ashaima polyclinic who have similar characteristics. After the pre-testing, some questions were reviewed appropriately before the final data collection.

3.9 Data Handling

Serial numbers were given to each questionnaire which was completed and received from the respondents. These were counter checked to be certain they were properly completed upon return and kept safe in a folder.

3.10 Data Collection Method and Analysis

A well-structured questionnaire was given to midwives at the Ga South Municipal government health facilities to elicit responses on the knowledge and utilization of the Modified WHO partograph. The questionnaire was written in English and consisted primarily of close ended questions and limited open-ended questions. A brief training was conducted for the research assistants to equip them to perform data entry correctly. Microsoft Excel version 2016 was employed for double data entry and cleaning. Data was then imported into STATA statistical software package for analysis (StataCorp.2007 Stata Statistical Software. Release 14. Stata Corp LP, College Station, TX, USA).

Statistical analyses involved were descriptive tools such as percentages, frequency tables and charts. Pearson's Chi-square analysis was performed to test associations between the utilization of the modified WHO partograph by midwives and study variables that may influence partograph use.

3.11 Ethical Considerations

Ethical approval was obtained from the Ethical Review Board of the Ensign College of Public Health (ECOPH). Institutional approvals were also granted by the Municipal Health Directorate (MHD) and the heads of facilities of the government health facilities where the study was conducted. Individual informed consent was obtained from participants before the questionnaire was administered. No participant was forced or coerced into the study were assured that, the data collected would be used for its intended purpose. Participants were well informed about the objectives of the study and they were given the option to decline from the study if they wished to discontinue. This study protected the privacy of all midwives who took part as it was anonymous and confidential. Participants were appropriately informed about the likely gains or risks from the outcome of the study.

3.12 Limitations of The Study

There was limited number of midwives for the study (small sample size) which may affect the power of test.

3.13 Assumptions

Assumptions were that participants understood the questions being asked and gave honest answers. Also it was assumed that they had knowledge and used the modified WHO Partograph appropriately.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter shows the results obtained from the survey with respect to the stated objectives of the study. A suitable mix of close-ended questions and a few open-ended questions were used to obtain quantifiable data from the midwives who were engaged at the Ga South Municipal government health facilities during the period that the study was conducted. Data analysis was done on 110 questionnaires which were fully completed constituting a95%response rate with three unfilled and two having missing data and therefore were excluded from the analysis.

4.2 Socio-demographic Characteristics of Midwives in Ga South Municipal Government Health Facilities.

Table 4-1 Frequency Table on Demographic Characteristics of Midwives

Socio-demographic Characteristics		
Characteristics	**Frequency(n)**	**Percentage(%)**
Age groups		
Below 30 years	36	32.73
31 to 40 years	61	55.45
Above 40 years	13	11.82
Total	110	100
Rank		
Staff midwife	42	38.18
Senior staff midwife	43	39.09
Midwifery Officer	15	13.64
Senior Midwifery Officer	7	6.36
Principal Midwifery Officer	3	2.73
Total	110	100
Highest professional qualification		
Certificate midwife	56	50.91
Diploma midwife	49	44.55
B.Sc. midwife	5	4.55
Total	110	100
Place of work		
Health center	54	49.09
Hospital	37	33.64
Polyclinic	19	17.27
Total	**110**	100
Average midwives per shift		
1 per shift	18	16.36
2 per shift	68	61.82
3 per shift	20	18.18
4 and more	4	3.64
Total	110	100
Years of experience		
Less 1 year	8	7.27
1-4 years	44	40
5-9 years	40	36.36
10-14 years	13	11.82
15-19 years	4	3.64
25 years and above	1	0.91
Total	110	100
Mean Age = 34.6	**SD ± 7.2**	

The table above shows the frequency of the socio-demographic characteristics of the midwives in this survey. It revealed that the majority, 61(55.5%) of the respondents were aged between 31 to 40 years giving a mean age of 34.6 years (SD = ±7.2). A further 36 (32.73%) were aged below 30 years whiles 13 (11.8%) indicated that they were 40 years and above. Most of the respondents 43 (39%) were in the rank of Senior Staff Midwife category which was closely followed by Staff Midwives constituting 42 (38%). Principal Midwifery Officer rank was the least with only 3 (2.7%). Majority of the participants 56 (51%) were certificate holders whiles the next majority 49 (44.5%) had Diploma. Midwives who had Degree (B.sc) as their highest professional qualification were only about 5 (4.5%). The fourth issue discussed was their place of work. Fifty-four (49.1%) indicated they worked at the health centers, about 37 (33.6%) at the Hospital and 19 (17.2%) worked at the Polyclinic. Regarding the average number of midwives per shift, about 68(61.8%) respondents worked in two- midwives per shift system which formed the majority. Twenty (18.2%) indicated three per shift whiles 18 (16.4%) indicated one midwife per shift. Four or more midwives on duty per shift was the least with 4 (3.6%) of the respondents. Regarding the years of experience,52 (47.3%) were the majority who had less than five years working experience. Forty (36.36%) also had five to nine years of experience. Furthermore, 13 (11.8%) indicated that, they had worked between 10 to 14 years and only about 5 midwives (5%)who had worked for over 15 years.

4.3Assessment of the Level of Knowledge and Use of the Modified WHO Partograph

This section's intention was to identify respondents' level of knowledge and the use of the modified WHO Partograph as shown in Table 4-2 and Table 4-3 respectively.

Table 4-2 Frequency Table on Assessment of Knowledge of Modified WHO Partograph

Knowledge of partograph Use		
	Frequency	**Percentage**
First Source of Knowledge		
From a colleague on labour ward	7	6.42
From a medical doctor	1	0.92
From a training institution	92	84.4
From in- service training	10	9.26
Ever had in -service training		
Yes	59	53.64
No	51	46.36
Description of partograph	105	95.45
Understanding of use of partograph		
Used as decision making tool	104	94.55
Help reduce maternal and newborn deaths	92	83.64
Parameters of partograph	109	99.09
At what cervical dilatation is plotting done partograph	109	99.09
Frequency of plotting during active phase	103	93.64
Assessment of progress of labor	110	100
Symbol used for cervical dilatation	110	100
Symbol used forfetal head descent	108	98.18
Description of prolonged labor		
14 hours and over for multiparous	90	81.82
20 hours for primiparous	76	69.09
Function of alert line	73	66.36
Function of action line	106	96.36
First entry of information unto partograph	75	68.18

Regarding the level of knowledge by midwives, 92 (84.4%) respondents indicated that, their first source of knowledge on partograph was gained from the Midwifery Training Colleges and Institutions. Nine (8.26%) received theirs from in-service trainingwhiles7 (6.4%) indicated to have received their first source of knowledge from colleagues on the labour wards. There was only 1(0.9%) who indicated to have received her source of knowledge from a medical doctor. Relating midwives to in-service training on the

modified WHO partograph, the majority of about 59 (54%) had received in-service training but close to half 51(46.36%) had not also received in-service training.

On the description of the partograph, 105 (95.45%) were able to describe it properly. With the understanding on the use of the partograph 104 (94.45%) knew it was used as a decision-making tool with 92 (83.64%) of the midwives knowing that it helped to reduce maternal and newborn deaths. One hundred and nine (99.09%) knew all the parameters of the partograph: fetal, maternal, progress of labor, medications and vital signs to be completely filled. Out of the 110 midwives, 109 (99.09%) of midwives were aware that plotting on the modified WHO Partograph begins at cervical dilatation 4cm and 103(93.64%) also knew that, cervical dilatation of the partograph is done every four hours during the active phase of labor. All 110 (100%)midwives knew the progress of labour is assessed by the degree of cervical dilatation and descent of the presenting part; they also knew the symbol X is used to plot cervical dilatation. However, 108 (98.18%) knew that symbol O is used to plot for the fetal head descent.

For prolonged labor, 90 (81.82%) described it well as lasting 14 hours and over for multiparous women and 76 (69.09%) described it well lasting 20 hours and over for primiparous women. Finally,73 (63.36%) of midwives knew the function of the alert line whilst 106 (96.36%) knew the function of the action line of the modified WHO partograph. Seventy-five (68.18%) midwives knew that the first entry of information unto the modified WHO partograph is at the onset of true labor.

Table 4-3 Frequency Table on Assessment of Extent of Partograph Use

Use of partograph		
Variables	**Frequency**	**Percentage**
Partograph Use		
Recorded on partograph past one month		
Yes	96	87.27
No	14	12.73
Consider partograph as time consuming		
Yes	5	4.55
No	78	70.91
Not really	27	24.55
Regular supply for Use		
Yes	100	90.91
No	10	9.09
Often usage of Partograph		
Routinely	102	92.73
Occasionally	8	7.27

Table 4-3 above shows respondent's assessment on the extent of use of the modified WHO Partograph. Most of the questions asked required a single answer from the responses. Ninety-six (about 87.3%) midwives had in the past one month recorded progress of labor onto the partograph, whiles 14 (12.73%) had not. Regarding the use of the partograph as being a time consuming tool, 78 (70.91%) indicated that it was not time consuming to use the partograph as against 5 (4.5%) who said it was. The remaining 27 (24.5%) responded that, they did not really consider it as time consuming to use the partograph. With reference to supply, 100 (90.91%) received regular supply of the modified WHO partograph charts whiles 10 (9.09%) did not. The survey revealed that 102 (about 93%) midwives routinely used the partograph to monitor their clients with the remaining 8 (7%) being occasional partograph users.

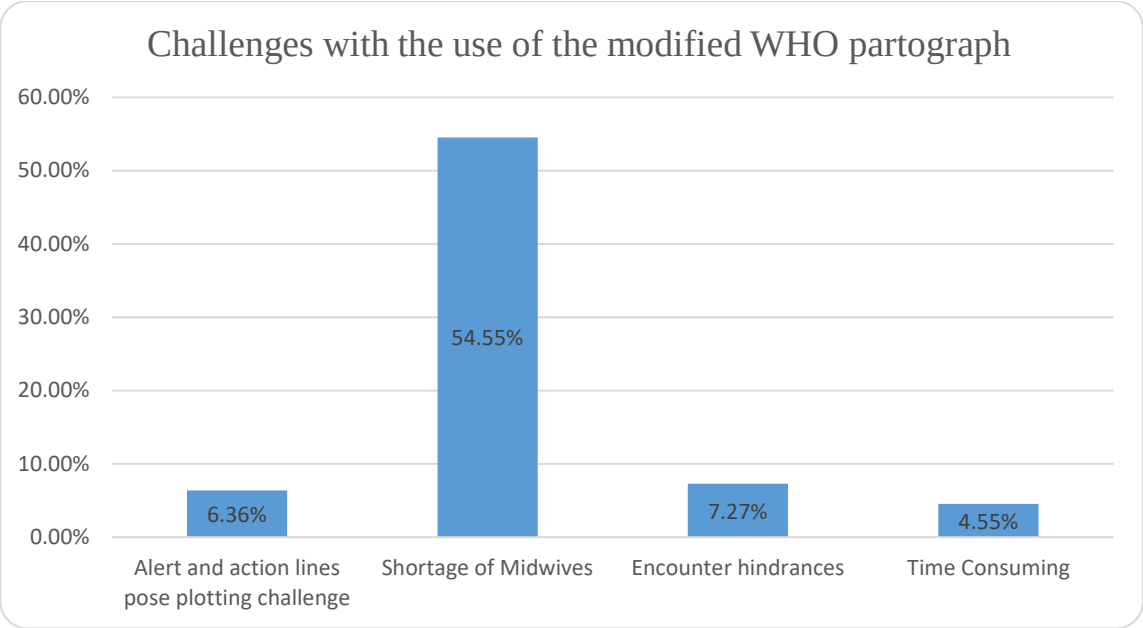


Figure 4-1 Bar Chart On Challenges Faced by Midwives on The Use Of Modified WHO Partograph

Participants in this study considered the factors in the bar chart above as some challenges they faced when using the modified WHO partograph. Results showed that 60 (54.5%) shortage of midwives was considered as the greatest challenge by midwives. Eight (7.27%) of respondents indicated that, they encountered hindrances for example being discouraged by their colleagues on duty when they used the partograph. For the plotting of the alert and action lines 7 (6.36%) had a challenge with it. Five midwives (4.5%) indicated that, partograph use was time consuming for monitoring of expectant women in labor.

4.5 Knowledge on GHS Policy and Protocols for Modified WHO Partograph

Table 4-4 Frequency Table on the Knowledge of GHS Policy and Protocols by Midwives

Knowledge on GHS Policy and Protocols		
Partograph policy in GHS	Frequency	Percentage
Yes	95	86.36
No	6	5.45
Not certain	9	8.18
Use partograph for every woman in labor		
Yes	73	66.36
No	37	33.64
Managerial protocol		
At 4cm cervical dilatation start use of the WHO partograph	104	94.55
Do not use partograph for women in second stage of labor	62	56.36
No partograph for women with APH or cord prolapse	66	60.00
Conduct vaginal examinations every 4 hours and record FHR 30minutes	107	97.27
Examine client carefully before use of partograph	51	46.36

From table 4-4, the survey showed that, the modified WHO partograph was known by the majority95 (86.36%) of the midwives as a policy in GHS. Nine participants (8.18%) were not certain and 6 (5.45%) did not know it was a policy guiding them. Seventy-three (66.36%) of midwives indicated that, every woman who comes into labour should be monitored on the partograph whiles 37 (33.64%) indicated otherwise. In this study, relating to some managerial protocols for assessment, 104 (94.5%) responded positive to start plotting at 4cm cervical dilatation on the modified WHO partograph. Sixty-two (56.36%) said there was no need to use the partograph when a woman arrives in the second stage of labor. Sixty-six (60%) responded that, when a woman has APH or cord prolapse, she should not be monitored on the partograph. Almost all 107(97.27%)

midwives responded that, vaginal examination should be done every four hours and FHR recorded every thirty minutes for all women in labor being monitored on the modified WHO partograph. The last but not the least among managerial protocols, 51(46.36%) testified to examine carefully expectant women in labor before using the modified WHO partograph.

4.6 Determining Strength of Association Between Variables on Use of Modified WHO Partograph

Results established from table 4-5 revealed that, there was one significant association between midwives use of the modified WHO partograph and their knowledge on the GHS policies ($p<0.045$). The other variables such as age, rank, years of experience, place of work, midwives per shift and highest qualification did not show any positive relationships with p-values: 0.659, 0.770, 1.00, 0.340, 0.507 and 1.00 respectively.

Table 4 -3 Test of Association Between Demographic Characteristics and Use of Modified WHO Partograph

Use of Modified WHO Partograph				
Variables	**Categories**	**Routinely** n (%)	**Occasionally** n (%)	**P-value**
Age groups	Below 30 years	34 (33.33)	2 (25.00)	0.659
	31 to 40 years	55 (53.92)	6 (75.00)	
	40 years and above	13 (12.75)	0	
Rank	Staff midwife	39 (38.24)	3 (37.50)	0.770
	Senior staff midwife	40 (39.22)	3 (37.50)	
	Midwifery officer	13 (12.75)	2 (25.00)	
	Senior midwifery officer and above	10 (9.80)	0	
Years of experience	Less than 5 year	48 (47.06)	4(50.00)	1.00
	5-9 years	37 (36.27)	3 (37.50)	
	10 years and above	17 (16.66)	1 (12.50)	
Place of work	Health center	48 (47.06)	6(75.00)	0.340
	Hospital	35(34.31)	2(25.00)	
	Polyclinic	19(18.63)	0	
Midwives per shift	1 per shift	17(16.67)	1(12.50)	0.507
	2 per shift	64(62.75)	4(50.00)	
	3 or more per shift	21(20.59)	3(37.50)	
Highest qualification	Certificate	52(50.98)	4(50.0)	1.000
	Diploma	45(44.12)	4(50.0)	
	B.sc midwife	5(4.90)	0	
Knowledge on GHS Policy	Yes	90(88.24)	5(62.50)	0.045*
	No	4(3.92)	2(25.00)	
	Not certain	8(7.84)	1(12.50)	

*NB *Significant value ($p<0.05$).*

CHAPTER FIVE

DISCUSSION

5.1 Introduction

Globally, several studies have been carried out in relation to midwives' knowledge and use of the modified WHO partograph and with focus on specific background objectives. This chapter discusses the study's findings as interpreted in chapter four according to the research objectives and stated research questions in the survey. Discussions in contrast or in support of the findings are made by comparison with findings from previous and similar studies conducted on the topic

5.2 Demographic Characteristics of Respondents

This survey had a total of 110 midwives participating from eight government health facilities. Their mean age was 34.6 years. The majority of participants were between 31 to 40 years. This finding was in contrast to a study by Zelellw et al., (2016), in North-West Ethiopia where the age group for midwives was younger and below 25 years thus, these age-brackets of midwives would have more years to practice midwifery. Most of the midwives 54 (49.09%) worked at the health centers which could probably imply that, the primary health care in our communities when sustained would ensure the safety of pregnant women during delivery at the first level of health care. Midwives having less than five years of working experience 52 (47.27%) and certificate holders as their highest qualification 56 (50.91%) could update their level of education through upgrade programs at the universities within the Ghana.

5.3 Knowledge and Use of the Modified WHO Partograph

This study found that, almost all midwives at Ga South Municipal government health facilities, 105 (95.45%) were able to properly describe the partograph; similar in finding to a study conducted in the Amhara region of Ethiopia by Abebe et al.,(2013), in which majority of the participants (99%) knew what a partograph was. At the Ga South municipal government hospitals, the midwives exhibited a very good understanding of the modified WHO partograph as a decision-making tool and knew that it helped to reduce maternal and newborn deaths; 94.45% and 83.64% of the total 110 midwife population respectively. This finding was in sharp contrast to findings by Abebe et al., (2013), in which only 21.8% (63) of them understood that utilization of the partograph could reduce both maternal and newborn deaths. Further research may be needed to understand the differences in findings between these study settings with regards to this.

Also, almost all midwives 109 (99.09%) in the current study were conversant with all the parameters of the partograph: fetal and maternal conditions, progress of labor, medications and vital signs. In another study involving midwives within the Accra Metropolitan Health facilities, Lizasoain *et al.*, (2015), majority of the midwives 73 (96%) also knew all the parameters of the partograph. However, a similar study in the Tamale Metropolis of Ghana, demonstrated that only 15.7% of 140 midwife respondents were familiar with this and thus possessed inadequate knowledge on the proper use of the partograph as a labor monitoring tool (Konlan *et al.*, 2016).This finding again may need further research to understand why these two regional settings differ even though they operate under one health body, the Ghana Health Service. Cultural and social factor

differences both at the individual health worker level and the community level may be the likely reasons.

Again, other important working knowledge associated with the modified WHO partograph such as: at what cervical dilation to start plotting on the partograph, the frequency of monitoring for cervical dilation, the assessment for the progress of labor, the plotting of cervical dilation with the X symbol and fetal head descent with the O symbol ranged between 93.64% to 100% in terms of correct answers given by the study participants. This shows a very high knowledge level of the modified WHO partograph by midwives at the Ga South Municipal government facilities. Some of these findings were consistent with the study by Lizasoain *et al.*, (2015) in the Accra Metropolitan Health facilities where majority of the midwives also knew when and how to plot for cervical dilatation and how often to monitor for the progress of labor using the partograph. Konlan *et al.*, (2016), observed that only about 40% of midwives at the Tamale Metropolis could properly determine at what cervical dilatation to start plotting on the partograph. However, majority of them knew the symbols for cervical dilatation and fetal head descent, X and O respectively.

The majority of the midwives at the Ga South Municipal health facilities could identify prolonged labor in both multiparous and primiparous women which was very good as this knowledge helps to institute lifesaving measures for both fetuses and mothers who are in fetal distress and labor distress. The participants were able to inform what decisions to be taken on the function of the alert line and the action line correctly with 73 (63.36%) and 106 (96.36%) respectively showing a good understanding of the modified WHO partograph.

Also from this study,102 (92.7%) midwives were found to routinely use the modified WHO partograph in their daily activities on the labor wards. Relating this to a study in North Shoa zone, Central Ethiopia, 162 (40.2%) participants used the modified WHO partograph routinely for all laboring women(Wakgari *et al.*, 2015).Evaluation of outcome from this study gave the findings that 59% of participants had received in-service training. There is the need for organization of more in-service training as well as encourage midwives to attend them.

At Ga South Municipal government health facilities 100 (90.9%) midwives admitted to receive regular supply of the modified WHO partograph to use for monitoring of women in labor which is similar to the study in India by Chaturvedi *et al.*, (2015),where only few midwives reported of irregular supply of the partograph sheets.

5.4 Challenges Faced by Midwives on Usage of modified WHO Partograph

There may be different perception of challenges faced by midwives in their workplaces which prevents them from using the modified WHO partograph in their daily activities. More than half, 60 (54.5%) of respondents in the present survey expressed that shortage of staff was their major challenge with regards to the use of the partograph. Relating this to a study in Nigeria by Asibong, *et al. (*2014), shortage of staff showed even a much higher percentage (61.5%). This is also in agreement with studies done in Accra Metropolitan area and Tamale Metropolis all in Ghana (Konlan *et al.*, 2016;Lizasoain *et al.*, 2015). Shortage of midwives is a general problem. Other challenges in this present survey were issues with time availability, difficulty plotting the alert and action lines and hindrances such as discouragement by other colleagues which constituted the following:

5 (4.5%), 7(6.36%) and 8 (7.27%) respectively. In contrast with the study in Central Ethiopia by Wakgari *et al.*,(2015), midwives challenges were: the use of other monitoring tools rather than the modified WHO partograph and the non-availability of the partograph charts which accounted for 52.6% and 21% respectively from their respondents.

5.5 Association Between Midwives Knowledge on GHS Policies and Use

There might be several different policies to guide work due to differences in the health systems, changes in policies per country specifics and their essential objectives for maternal and child health. In Ghana, the MOH formulates the health policies which are then implemented by GHS. Regarding policies on the use of the modified WHO partograph during labor, the present study, showed a significant association ($p<0.045$) between midwives' knowledge on the GHS policies and the use of the modified WHO partograph. Opiah *et al.*, (2012), in their study had a contrary observation which reported a significant relationship between years of experience by midwives and the use of the modified WHO partograph. The study also expectedly confirmed non-significant associations between use of the partograph on participants age, rank, educational qualification, place of work and years of experience. Taking into consideration the strong strength of association between knowledge of GHS policies and use of the modified WHO partograph, knowledge of GHS policies should be well promoted through continuous professional advancement right from the training institutions and also through in-serve training. Updates on current policies for obstetric caregivers

(midwives) should be communicated in all manner of ways to allow for better outcomes in the course of their work as the knowledge on GHS policies seemed to account for the majority of respondents in this study having a high level of knowledge of the partograph use.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion

This study was conducted in the Ga South Municipality of the Greater Accra Region with the principal objective being to assess the level of knowledge and usage of the modified WHO Partograph by midwives who worked in the eight health facilities. This last section grants a finishing inference of the study and also gives some recommendations on the topic. In general, this survey revealed a high knowledgeable perception of the Modified WHO partograph among midwives in the study area with almost all 105 (95.5%) being able to describe the partograph properly. The facilities also ensured that midwives received regular supply of the partograph charts on their wards for which almost 93%routinely used it in the practice of their work to monitor expectant women in labor. The respondents, however, gave well-known several challenges for not using the partograph properly. Concerns raised were the shortage of staff at the labor units; being the topmost (55%). In-as-much as most midwives routinely used it, they expressed a need for motivation from their labor ward in-charges to ensure its full and complete utilization.

Thus, in conclusion, the knowledge and the usage of modified WHO Partograph at the Ga South government health facilities was encouraging and at a high level. In effect, the use of the partograph by skilled personnel consistently could promote the safety of our expectant women through safe motherhood initiative.

6.2 Recommendations

The following recommendations are made based on the findings from this study. These recommendations are directed to the appropriate authorities and are intended to yield positive results.

- The Chief Nursing and Midwifery Officer and her officers in charge of obstetric and women's health should organize refresher courses and in-service trainings to boost knowledge of midwives on partograph usage as well as to provide updates on the GHS policies.
- Since the first source of knowledge for nurse midwives is from the Midwifery Training Institutions, they need to be equipped with all necessary items in their skills laboratories for student midwives to be well vested with all the details required of a midwife to practice effectively as an obstetric care giver. This is to help sustain the high level of knowledge as observed at the Ga South Municipal health facilities.
- Inclusion of Private healthcare providers might give it a broader picture to make generalization possible.
- The Ministry of Health in order to curb issues of shortage of midwife personnel should endeavor to train and post more midwives for suitable allocation in all government health facilities.
- There is a need for further investigations to understand why there exist maternal and newborn deaths at the Ga South municipality, even though there is high knowledge and utilization of the modified WHO partograph amongst midwives at the Ga South municipal government health facilities.

REFERENCES

A. O. Fawole, D. A. Adekanle, K. I. Hunyinbo, Fawole, A. O., Adekanle, D. A., & Hunyinbo, K. I. (2008). Knowledge and utilization of the partograph among obstetric care givers in south west Nigeria. *African Journal of Reproductive Health*, *12*(1), 22–29.

Abebe, F.(2013). Assessment of Knowledge and Utilization of the Partograph among Health Professionals in Amhara Region, Ethiopia. *Science Journal of Clinical Medicine*, *2*(2), 26. https://doi.org/10.11648/j.sjcm.20130202.11

Asibong, U., Okokon, I. B., Agan, T. U., Oku, A., Opiah, M., Essien, E. J., & Monjok, E. (2014). The use of the partograph in labor monitoring: a cross-sectional study among obstetric caregivers in General Hospital, Calabar, Cross River State, Nigeria. *International Journal of Women's Health*, *6*, 873–880. https://doi.org/10.2147/IJWH.S49188

Baxter, R., Hastings, N., Law, a., & Glass, E. J. (2008). *Animal Genetics*, *39*(5), 561–563.

Bazirete, O., Mbombo, N., & Adejumo, O.(2017). Utilisation of the partogram among nurses and midwives in selected health facilities in the Eastern Province of Rwanda. *Curationis*, *40*(1), e1–e9. https://doi.org/10.4102/curationis.v40i1.1751

Bedwell, C., Levin, K., Pett, C., & Lavender, D. T. (2017). A realist review of the partograph : when and how does it work for labour monitoring ? *BMC Pregnancy and Childbirth*, 1–11. https://doi.org/10.1186/s12884-016-1213-4

Chaturvedi S, Upadhyay S, De Costa A,(2015). Implementation of the partograph in India's JSY cash transfer programme for facility births: a mixed methods study in Madhya Pradesh province. BMJ Open 2015;5:e006211. doi:10.1136/bmjopen-2014- 006211

Fawole A. O., Adekanle D. A, Hunyinbo K. I, (2008) Knowledge and utilization of the partograph among obstetric care givers in south west Nigeria.African Journal of Reproductive Health

Ga South Municipal Health Directorate. (2018). Annual Performance Report .

Ghana Statistical Service.(2010). Summary Report of Final Results, 103.

Hailu, T., Nigus, K., Gidey, G., Hailu, B., & Moges, Y.(2018). Assessment of partograph utilization and associated factors among obstetric care givers at public health institutions in central zone, Tigray, Ethiopia. *BMC Research Notes*, 1–6. https://doi.org/10.1186/s13104-018-3814-7

Khonje, M.(2012). Use and Documentation of Partograph in Urban Hospitals in Lilongwe- Malawi: Health Workers' Perspective, (May), 1–155.

Kwast, B., & Researcher, I. (2016). The modified WHO partograph : do we need a latent phase ?, (January). https://doi.org/10.12968/ajmw.2008.2.3.30714

Lizasoain, A., Tort, L. F., Garc\'\ia, M., Gomez, M. M., Leite, J. P., Miagostovich, M. P., Victoria, M. (2015). Assessment of usage of the modified world health organisation (who) partograph by midwives within the Accra Metropolitan health facilities, Ghana By. *Journal of Applied Microbiology*, *119*(3), 859{\textendash}867.

Mathibe-Neke,J.,Lebeko F. L.and Motupa B.(2013). The partograph: A labour management tool or a midwifery record? *International Journal of Nursing and Midwifery*, *5*(8), 145–153. https://doi.org/10.5897/IJNM2013.0115

Mandiwa, C., & Zamawe, C. (2017). Documentation of the partograph in assessing the progress of labour by health care providers in Malawi's South-West zone. *Reproductive Health*, *14*(1), 1–7. https://doi.org/10.1186/s12978-017-0401-7

Mezmur, H., Semahegn, A. and Tegegne, B. S.(2017). 'Health professional's knowledge and use of the partograph in public health institutions in eastern Ethiopia: a cross-sectional study.', BMC pregnancy and childbirth. England, 17(1), p. 291. doi: 10.1186/s12884-017-1477-3

Monjok, E., Asibong, U., Okokon, I. B., Agan, T. U., Oku, A., Opiah, M., & Essien, E. J. (2014). The use of the partograph in labor monitoring: a cross-sectional study among obstetric caregivers in General Hospital, Calabar, Cross River State, Nigeria. *International Journal of Women's Health*, *6*, 873. https://doi.org/10.2147/IJWH.S49188

Ollerhead, E., & Osrin, D. (2014). Barriers to and incentives for achieving partograph use in obstetric practice in low-and middle-income countries: A systematic review. *BMC Pregnancy and Childbirth*, *14*(1). https://doi.org/10.1186/1471-2393-14-281

Opiah, M. M., Ofi, A. B., Essien, E. J. &, & Monjok, E. (2012). Knowledge and utilization of the partograph among midwives in the Niger Delta Region of Nigeria. *African Journal of Reproductive Health*, *16*(1), 125–132. https://doi.org/10.1130/G32020.1

Sama, C. B., Takah, N. F., Danwe, V. K., Melo, U. F., Dingana, T. N., & Angwafo, F. F. (2017). Knowledge and utilization of the partograph: A cross-sectional survey among obstetric care providers in urban referral public health institutions in northwest and southwest Cameroon. *PLoS ONE*, *12*(2), 1–14. https://doi.org/10.1371/journal.pone.0172860

Tayade, S., Jadhao, P., & Jadhao, P. (2012). the Impact of Use of Modified Who Partograph on Maternal and Perinatal Outcome. *International Journal of Biomedical and Advance Research*, *3*(4), 256–262. https://doi.org/10.7439/ijbar.v3i4.398

Wakgari, N., Amano, A., Berta, M., & Tessema, G. A. (2015a). Partograph utilization and associated factors among obstetric care providers in north shoa zone, central ethiopia: A cross sectional study. *African Health Sciences*, *15*(2). https://doi.org/10.4314/ahs.v15i2.30

WHO, UNICEF, UNFPA, Group, W. B., & Division, U. N. P.(2014). Maternal Mortality Estimation Intra-agency Group. Definitions 2014 (updated 26/12/2014); Available from: http;//www.maternalmortalitydata.org/Defination s.html.

Willi, W., & Sciences, H.(2017). Partograph chart use among obstetric caregivers in public health institutions of west shewa zone , oromia regional state , *9*(1), 36–44.

Woldemichael, L., Kidane, M., & Ghebreyohans, G. (2016). Knowledge , Attitude , and Factors Affecting Practice of Partograph by Professional Birth Attendants. *International Journal of Sciences: Basic and Applied Research*, *26*(1), 179–192.

Yisma, E., Dessalegn, B., Astatkie, A., & Fesseha, N.(2013a). Completion of the

modified World Health Organization (WHO) partograph during labour in public health institutions of Addis Ababa, Ethiopia. *Reproductive Health*, *10*, 23. https://doi.org/10.1186/1742-4755-10-23

Yisma, E., Dessalegn, B., Astatkie, A., & Fesseha, N.(2013c). Knowledge and utilization of partograph among obstetric care givers in public health institutions of Addis Ababa, Ethiopia. *BMC Pregnancy and Childbirth*, *13*(May 2014). https://doi.org/10.1186/1471-2393-13-17

Zelellw, D. A., & Tegegne, T. K. (2018). Level of partograph utilization and its associated factors among obstetric caregivers at public health facilities in East Gojam Zone, Northwest Ethiopia. *PLoS ONE*, *13*(7), 1–13. https://doi.org/10.1371/journal.pone.0200479

Zelellw, D. A., Tegegne, T. K., & Getie, G. A. (2016). Knowledge and Attitude of Obstetric Care Providers on Partograph and Its Associated Factors in East Gojjam Zone, Northwest Ethiopia. *Advances in Medicine*, *2016*, 1–8. https://doi.org/10.1155/2016/6913165

APPENDICES

APPENDIX 1 INFORM CONSENT

Dear participant,

I am Vivian Asirifi, MPH student of Ensign College of Public Health. I am carrying out a study to assess the level of knowledge and use of the modified WHO partograph by midwives in labor wards of Government health facilities in the Greater Accra Region of Ghana.

This research is purely for academic purposes. Data collection will be used to describe knowledge and factors influencing utilization of the partograph by midwives during labor monitoring. This may be valuable and add to the improvement of the quality of care for women in labor. It is voluntary participation and you can choose to discontinue at any time you wish. Your privacy and anonymity will be respected. Information provided will be treated with confidentiality. If you choose to participate, please complete this questionnaire. Thank you.

APPENDIX 2: QUESTIONNAIRE ON KNOWLEDGE AND UTILIZATION OF MODIFIED WHO PARTOGRAPH BY MIDWIVES AT GA SOUTH MUNICIPAL GOVERNMENT HEALTH FACILITIES IN THE GREATER ACCRA REGION OF GHANA

SECTION A: Biographic Characteristics: Tick appropriately.

1. Age: ..... (Years) as at **last** birthday
2. Sex: **[]** Female **[]** Male
3. What is your rank?

   [ ] Staff midwife

   [ ] Senior Staff Midwife

   [ ] Midwifery Officer

   [ ] Senior Midwifery Officer

   [ ] Principal Midwifery Officer

   [ ] other, specify----------

4. What is your **highest** professional qualification?

   [] Certificate midwife

   [] Diploma midwife

   [ ] B.sc midwife

   [ ] Other, please specify----------

5. Current place of work

   [ ] Health center

   [ ] Hospital

   [ ] Polyclinic

6. **Average number** of midwives per shift on your ward.

   [] 1 per shift

   [ ] 2 per shift

   [] 3 per shift

   [ ] 4 and more

7. Period of **practice / years of experience** as a midwife

[] less 1 year

[] 1 – 4 years

[] 5 - 9 years

[ ] 10 - 14 years

[ ] 15 -19 years

[]20 – 24 years

[]25 years and above

8. Do you have access to **in-service training** on the modified WHO partograph?

   [ ] Yes

   [ ] No

9. If **yes t**o question 8, how often do you have refresher / in-service training on the modified WHO partograph?

   [ ] every two months

   [ ] every six months

   [ ] Yearly

SECTION B: Knowledge and use of modified WHO Partograph: Tick as applicable.

10. Have you recorded information of a woman in labour on to a Partograph in the **past one** month? **[]** Yes

    [] No

11. Do you consider the partograph to **be time consuming**?

    [ ] Yes

    [ ] No

    [ ] Not really

12. Which of the following **BEST** describes a partograph?

[] A chart for monitoring of labour by doctors

[] A complex tool with pictorial overview of labour for use by midwives

[ ] A simple graphic recording of progress of labour by midwives on salient conditions of mother and fetus against time in hours.

13. Where did you **first gain** knowledge on the use of the WHO modified partograph?

[] From a colleague on the labour ward

[] From a medical doctor

[] From a training institution

[] From in –service training

[ ] Other specify……..

14. What is your understanding about the **use** of partograph? Tick all that apply

[] The Partograph is used as decision-making tool in labour monitoring.

[] The partograph can help reduce maternal and new born deaths.

[] Graphic presentation for normal progress of labour.

[ ] Aid in communication among pregnant women

15. When do you say that the partograph is **completely filled**?

[ ] when parameters (fetal, maternal, progress of labour, medications, vital signs) are correctly filled

[ ] when only fetal conditions (FHR, molding and liquor) are filled

[ ] when only maternal vital signs (BP, temperature and pulse) are filled

16. At what **cervical dilation** do you plot on the modified WHO partograph?

[ ] 2cm

[ ] 3cm

[ ] 4cm

[ ] 5cm

17. During the active phase of labour **how often** do you record cervical dilatation on the partograph?

[] 30 Minutes – 1 hour

[] 2-3 hours

[] 4 hours apart

18. Is progress of labour assessed by the degree of cervical **dilatation and descent** of the presenting part?

[] Yes **[ ]** No

19. On the modified WHO partograph, which symbol is used to plot cervical dilation?

[ ] X

[ ] O

[ ] V

20. On the modified WHO partograph, which symbol is used to plot descent of fetal head?

[ ] X

[ ] O

[ ] V

21. Labour is **prolonged** when it lasts more than … Tick all that applies

[] 8 to 10 hours for all women

[] 14 hours and over for multiparous

[] 20 hours and over for primiparous

22. What is the function of the **alert line** on the Partograph? Tick all that applies

[] Indicates normal progress of labour

[] Allows time for the woman to be adequately assessed for appropriate intervention

[] Assists midwife to continue observations until delivery

23. What is the function of the **action line** on the Partograph?

[] Indicates appropriate action must be taken as soon as possible

[] Allows time for the woman to be assessed for further intervention

[] Continue observations until delivery

24. In your practice, when do you **first enter** information unto the Partograph?

[] Upon diagnosis of true labour

[] While the woman is still in labour

[] After delivery of the baby

SECTION C: Challenges and Characteristics of Partograph usage: tick appropriate answer.

25. Do you have **regular supply** of Partograph on your labour ward?

[] Yes **[]** No

26. How **often** is the Partograph used to monitor women during labour in your facility?

[] Routinely

[] Rarely

[] Occasionally

27. Is the Partograph used for **every woman** in labour in your facility?

[] Yes

[] No

28. Does the alert line and action line on the modified WHO partograph pose a plotting challenge? [ ] Yes [ ] No

SECTION D: Factors affecting the use and practice of modified WHO Partograph: Tick as applicable.

29. In GHS, is it a **policy** to monitor all women in labour using the modified WHO partograph?

[] Yes

[] No

[] Not certain

30. What are some labour management **protocol** for partograph use in GHS facilities? Tick all that apply

[ ] At 2cm cervical dilatation you can use the modified WHO partograph

[ ] Do not use partograph for woman in second stage of labour

[ ] When there is APH or cord prolapse there should be no partograph

[ ] Vaginal examination should be done every 4 hours and record FHR every 30 minutes.

[ ] Examine client carefully before using partograph.

31. Do you consider **shortage of midwives** as a factor affecting use of the partograph to monitor labour?

[] Yes

[] No

32. Do you think **protocols** developed for labour unit can **assist in effective** use of partograph?

[] Yes

[] No

[ ] Not really

33. Do you encounter **hindrances** when using the partograph on your ward?

[] Yes

[] No

34. If yes to question 33, what are they? ----------

---

35. What factor (s) influence **youmost to use** the modified WHO partograph? Tick all apply

[] In-service training and update on the use of the partograph

[] Midwives per shift

[] Availability of the partograph on the ward

[ ] Motivation from superiors

[ ] Other specify----------

36. How would you rate the modified WHO Partograph usefulness in O**bstetric review**?

[ ] Very good

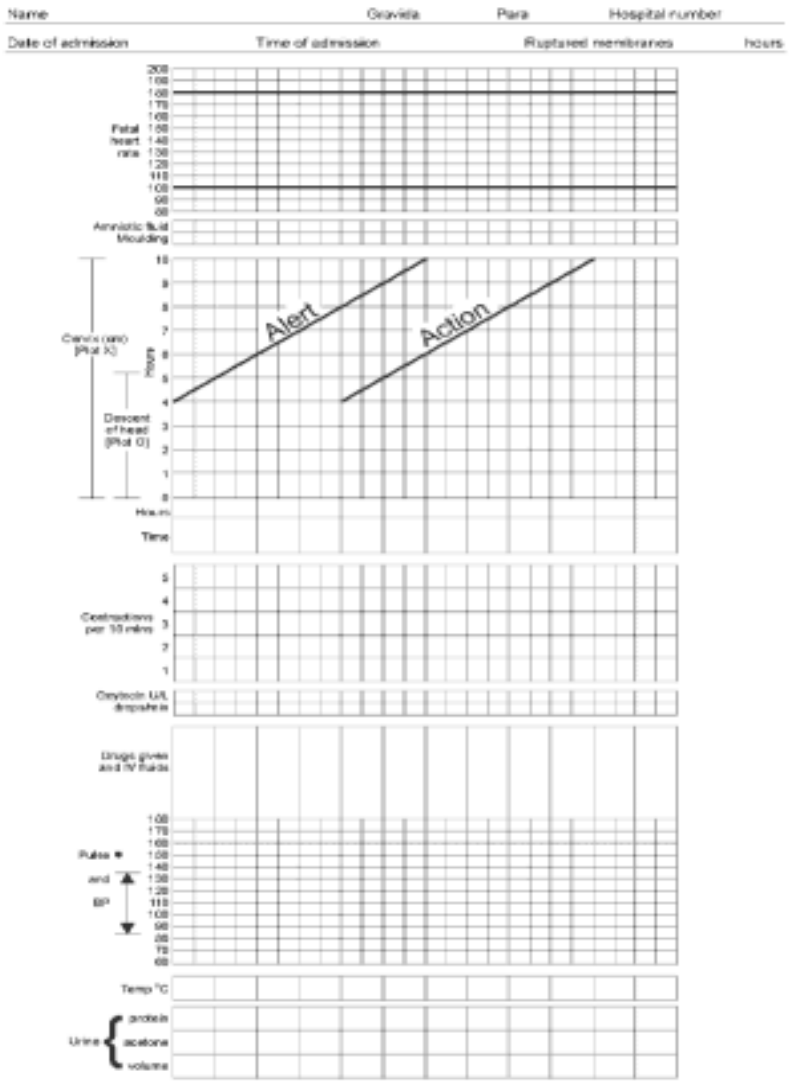
[ ] Good

[ ] Don't know

37. What do you recommend for the improvement of knowledge and use of the modified WHO partograph at your facility/ unit?

APPENDIX 3 MODIFIED WHO PARTOGRAPH

b. Modified partograph (WHO 2000)



Modified partograph contains no latent phase and is only plotted once active labour begins.